is not a piece of required information. That is, there is a

second drawback that the user cannot easily take out

information having a high necessity for the user from a large

volume of information in the information filtering.

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SUMMARY OF THE INVENTION

An object of the present invention is to provide, with due

consideration to the drawbacks of such a conventional

information filtering apparatus, ~~an information filtering~~ a keyword dictionary producing

10   method and ~~an information filtering~~ apparatus in which ~~an~~ a keyword

~~information filtering~~ dictionary is ~~performed~~ produced with a high precision by ~~an~~ a

beginner and information having a high necessity for a user is

easily retrieved from a large volume of information.

The object is achieved by the provision of ~~an information~~ a keyword dictionary

producing

15   ~~filtering~~ apparatus, comprising:

information indicating means for indicating pieces of

learning information;

learning information control means for receiving a

plurality of teaching signals respectively indicating whether

20   one piece of learning information indicated by the information

indicating means is necessary or unnecessary and generating

pieces of teaching data respectively composed of one piece of

learning information and one teaching signal corresponding to

the piece of learning information;

25   learning means for performing a learning operation for each

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of the pieces of teaching data generated by the learning

information control means to produce records indicating

whether each piece of learning information indicated by the

information indicating means is judged to be necessary or

5 unnecessary; and

Keyword ~~dictionary~~ producing ~~information filtering~~ means for ~~filtering~~ producing key words from pieces of

information data according to the records produced by the

learning means to arrange the pieces of information data in

order of necessity.

10   In the above configuration, a user judges whether each

piece of learning information indicated by the information

indicating means is necessary or unnecessary. That is, in

cases where one piece of learning information is necessary for

the user, a teaching signal indicating that the piece of

15 learning information is necessary is received by the learning

information control means. In contrast, in cases where one

piece of learning information is unnecessary for the user, a

teaching signal indicating that the piece of learning

information is unnecessary is received by the learning

20 information control means. Thereafter, a teaching data

composed of one piece of learning information and one teaching

signal is produced for each piece ~~of the~~ learning information.

Thereafter, a learning operation is performed for each piece ~~of the~~

teaching data in the learning unit, and records indicating

25 whether each piece of learning information indicated by the

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information indicating means is a piece of necessary

information or a piece of unnecessary information are

produced. Thereafter, ~~keywords are produced from~~ pieces of information data ~~are filtered~~

according to the records in the ~~information filtering~~ keyword dictionary producing means ~~to~~ for

arrange the information data in order of necessity.

Accordingly, because the pieces of information data can be

indicated to the user in order of necessity, information

having a high necessity for a user can be easily retrieved

from a large volume of information.

Also, the object is achieved by the provision of ~~an~~ a

keyword dictionary producing ~~information filtering~~ method, comprising the steps of:

indicating pieces of learning information on an indicating

unit;

receiving a plurality of teaching signals respectively

indicating whether one piece of learning information indicated

on the indicating unit is necessary or unnecessary;

generating pieces of teaching data respectively composed of

one piece of learning information and one teaching signal

corresponding to the piece of learning information;

performing a learning operation for each of the pieces of

teaching data to produce records indicating whether each piece

of learning information indicated by the information

indicating means is judged to be necessary or unnecessary; and

producing keywords from ~~filtering~~ pieces of information data according to the

records ~~to~~ for arrange the pieces of information data in order of

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high positive value, the summed keyword value for information (not judged as unnecessary data by the user at a high probability) to which many keywords belonging to the keyword set B are attached is a negative and high absolute value, and

5 the keywords attached to each of pieces of information can be converted to the summed keyword value.

Accordingly, a necessity degree of each piece of information judged by the user to be necessary can be predicted by using the summed keyword value. In the present invention, the

10 allocation of values to one or more keywords (including keywords simultaneously occurred) which are attached to unread information indicated in the interface unit 51 is automatically performed according to the unread information and the estimation of a necessity degree or an unnecessity

15 degree performed by the user for the unread information, a necessity signal corresponding to the unread information is calculated with a high precision, and pieces of unread information are arranged in order of necessity with a high precision.

20 In a first embodiment, a plurality of keywords attached to each piece of information are converted to a vector V composed of elements $V(1)$, $V(2)$,--,$V(nofDCK)$, an auto-correlation matrix My of the vector is calculated in cases where the information is judged by the user to be necessary, and a

25 length SY of the vector V is calculated as follows.

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